

CLAIMS

1. A method for measuring clamping loads used to clamp a production part in position in a machining fixture, comprising the steps of:
substituting a test part for the production part wherein said test part includes at least one clamp portion each having a load cell installed
5 thereto;
clamping said test part with a clamp at said clamp portion; and
collecting and recording data from said load cell.
2. A test pallet to substitute for a production pallet in a machining station comprising:
said test pallet configured as said production pallet;
at least one clamp portion in the same location as said production
5 pallet;
a load cell installed at each of said clamp portions; and
an on-board data acquisition collector.
3. The test pallet, as defined in claim 2, further comprising a test code to communicate not to proceed with any machining operations.
4. The test pallet, as defined in claim 2, further comprising a proximity switch to detect when said test pallet is in position and ready to record load cell data.

5. The test pallet, as defined in claim 2, further comprising a case enclosing said on-board data acquisition collector.

6. The test pallet, as defined in claim 2, wherein said on-board data acquisition collector is operable to store load cell data and download the data in an electronic readable format.

7. A method for monitoring clamp loads used to clamp a production pallet in position for at least one machining station, comprising the steps of:

- substituting a production pallet with a test pallet;
- 5 detecting when said test pallet is at the machining station and ready to record load cell data;
- clamping said test pallet at at least one clamp portion having a load cell installed thereto; and
- collecting and storing load data from said load cells.

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8. The method as defined in claim 7, further comprising the step of:

signaling to the machining station not to proceed with a machining operation when test pallet is clamped.

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9. The method as defined in claim 7, further comprising the steps of:

manipulating the collected load data; and
storing a representative load reading from each of said load cells.

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10. The method as defined in claim 7, further comprising the steps of:

- transferring said test pallet to a second machining station;
- collecting clamping load data from a clamp of said second
- 5 machining station; and
- storing said load data of said second machining station along with said load data from the previous machining station.

11. A method for monitoring clamp loads used to clamp production pallets in position in a transfer machining line, comprising the steps of:

- substituting a test pallet for a production pallet during a
- 5 production cycle wherein said test pallet includes at least one load cell located at a respective clamp portion;
- placing said test pallet on a transfer bar which lifts and carries said test pallet from station to station;
- separating said transfer bar from said test pallet when said test
- 10 pallet is delivered to a first machining station;
- clamping said test pallet with a clamp at said clamp portion;
- detecting when said transfer bar has separated from said test pallet;
- collecting and storing data from said load cell.

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12. The method as defined in claim 11, wherein the step of detecting when said transfer bar separates from said test pallet is accomplished by a proximity switch.

13. The method as defined in claim 12, further comprising the steps of:

signaling a data collector to initiate data collection from said load cells after said proximity switch detects said transfer bar has separated from
5 said test pallet.

14. The method as defined in claim 11, further comprising the steps of:

signaling to the machining station not to proceed with a machining operation once said test pallet is clamped.
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15. The method as defined in claim 11, further comprising the steps of:

transferring said test pallet to a second machining station;
collecting load cell data from said second machining station; and
5 storing said second machining station data along with said previous machining station data.